1807.1894   PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:)
                                         :   Examiner: Unassigned
Isabelle AMONOU, et al.   )
                                         :   Group Art Unit: Unassigned
Application No.: Unassigned   )
                                         :
Filed: November 23, 2001   )
                                         :
For: INSERTION OF MESSAGES IN   )
     DIGITAL DATA   :   November 23, 2001

Commissioner for Patents
Box New Application
Washington, D.C. 20231

PRELIMINARY AMENDMENT

Sir:

            Prior to examination on the merits, please amend the above-identified

application as follows:

IN THE CLAIMS:

            Please amend Claims 1-33, to read as follows. A marked-up copy of Claims 1-

33, showing the changes made thereto, is attached.

            1. (Amended) A method of inserting a message in a subset of digital data

representing physical quantities, characterised in that the method includes the steps of:

a) estimating a capacity to receive a message for said subset,

b) selecting from a set of messages a message having a size less than or equal to the estimated capacity, and

c) inserting the selected message in the said subset of digital data.

2. (Amended) The insertion method according to Claim 1, characterised in that it includes a prior step of producing the set of messages, and said set includes messages having different sizes.

3. (Amended) The insertion method according to Claim 2, characterised in that each message in the set that is of a size that is not the largest in the set is deducible form another message with a larger size that is included in the set of messages.

4. (Amended) The insertion method according to Claim 3, characterised in that the message is selected so that its size is just less than or equal to the estimated capacity for said subset of digital data.

5. (Amended) The insertion method according to Claim 4, characterised in that said subset of digital data has an arbitrary shape.

6. (Amended) The insertion method according to Claim 5, characterised in that said subset of digital data corresponds to an object characterizing a semantic entity of the set of

digital data.

7. (Amended) The insertion method according to Claim 6, characterised in that it also includes the prior steps of:

segmenting the digital data into regions, and

selecting at least one region in order to constitute said subset.

8. (Amended) The insertion method according to Claim 7, characterised in that step (c) includes, for each element of the message, the choice of coefficients in said subset and the modulation of the element on the values of the chosen coefficients.

9. (Amended) The insertion method according to any one of Claims 1 to 8, characterised in that step (a) includes the calculating of the minimum number of coefficients necessary for inserting a message element so as to be able to detect this element with a predetermined correct detection probability.

10. (Amended) The insertion method according to Claim 7, characterised in that it includes steps of:

segmenting the subset into blocks and

transforming the blocks by means of a reversible transformation, prior to step (c),

and wherein step (c) includes the steps of:

selecting a group of coefficients in a transformed block, for an element of the message to be inserted, and

coding the element to be inserted according to the relative values of the coefficients of the selected group.

11. (Amended) The insertion method according to Claim 10, characterised in that step (a) includes searching for the number of usable groups according to a predetermined rule.

12. (Amended) A method of extracting a message inserted by the method of Claim 1, in a subset of digital data representing physical quantities, characterised in that it includes steps of:

extracting the message,

comparing the extracted message with messages stored in memory, and

identifying the fact that the extracted message belongs to a set of stored messages.

13. (Amended) A device for inserting a message in a subset of digital data representing physical quantities, characterised in that it comprises:

means of estimating a capacity to receive a message for said subset,

means of selecting a message with a size less than or equal to the estimated capacity, in a set of messages, and

means of inserting the selected message in the said subset of digital data.

14. (Amended) The insertion device according to Claim 13, characterised in that it also comprises means of producing the set of messages, and said set includes messages having different sizes.

15. (Amended) The insertion device according to Claim 14, characterised in that the means of producing are adapted to form each message with a size that is not the largest in the set of messages so as to be deducible from another message with a greater size and included in the set of messages.

16. (Amended) The insertion device according to Claim 15, characterised in that the means of selecting are adapted to select the message so that its size is just less than or equal to the estimated capacity for said subset of digital data.

17. (Amended) The insertion device according to Claim 16, characterised in that it is adapted to consider a subset of digital data that is arbitrary in shape.

18. (Amended) The insertion device according to Claim 17, characterised in that it is adapted to consider a subset of digital data that corresponds to an object characterizing a semantic entity of the set of digital data.

19. (Amended) The insertion device according to Claim 18, characterised in that it also comprises:

means of segmenting the digital data into regions and

means of selecting at least one region in order to constitute said subset.

20. (Amended) The insertion device according to Claim 19, characterised in that the means of inserting the selected message are adapted to make, for each element of the message, the choice of coefficients in said subset and the modulation of the element on the values of the chosen coefficients.

21. (Amended) The insertion device according to Claim 20, characterized in that the means of estimating a capacity are adapted to calculate the minimum number of coefficients necessary for inserting a message element so as to be able to detect this element with a predetermined correct detection probability.

22. (Amended) The insertion device according to Claim 19, characterized in that it also comprises:

means of segmenting the subset into blocks and

means of transforming the block by means of a reversible transformation, prior to the insertion step,

and wherein the means of inserting the selected message comprises:

means of selecting a group of coefficients in a transformed block, for an element of the message to be inserted, and

means of coding the element to be inserted according to the relative values of the coefficients of the selected group.

23. (Amended) The insertion device according to Claim 22, characterised in that the means of estimating a capacity are adapted to seek the number of groups that can be used according to a predetermined rule.

24. (Amended) A device for extracting a message inserted by the device according to Claim 13, in a subset of digital data representing physical quantities, characterised in that the device for extracting comprises:

means of extracting the message,

means of comparing the extracted message with messages stored in memory and

means of identifying the fact that the extracted message belongs to a set of stored messages.

25. (Amended) The insertion device according to any one of Claim 13 to 23, characterised in that the estimation, selection and insertion means are incorporated in:

a microprocessor,

a read-only memory containing a program for processing the data, and

a random access memory containing registers adapted to record variables modified during the running of said program.

26. (Amended) The extraction device according to Claim 24, characterised in that the extraction, comparison and identification means are incorporated in:

a microprocessor,

a read-only memory containing a program for processing the data, and

a random access memory containing registers adapted to record variables modified during the running of said program.

27. (Amended) A digital signal processing apparatus, characterised in that it comprises means adapted to implement the insertion method of Claim 1.

28. (Amended) A digital signal processing apparatus, characterised in that it comprises the insertion device of Claim 13.

29. (Amended) A storage medium storing a program for implementing the insertion method of Claim 1.

30. (Amended) The storage medium according to Claim 29, characterised in that said storage medium is detachably mountable on an insertion device according to Claim 13.

31. (Amended) The storage medium according to Claim 29 or 30, characterised in that said storage medium is a floppy disk or a CD-ROM.

32. (Amended) A computer program on a storage medium and comprising computer executable instruction for causing a computer to insert a message in a subset of digital data representing physical quantities according to the insertion method of Claim 11.

33. (Amended) A computer program on a storage medium and comprising computer executable instructions for causing a computer to extract a message inserted in a subset of digital data representing physical quantities according to the extracting method of Claim 12.
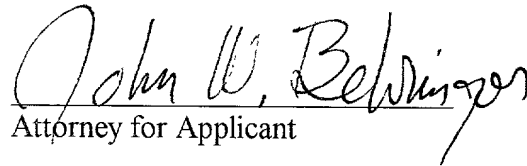
REMARKS

The present Preliminary Amendment is being filed together with the original applications papers in the subject application.

The claims pending in the present application are Claims 1 to 33, the independent claims being Claims 1 and 13. Claims 1-33 have been amended to improve the form (dependency) of the claims under U.S. patent practice. No new matter has been added.

Applicant's undersigned attorney may be reached in our Washington, D.C.

office by telephone at (202) 530-1010. All correspondence should continue to be directed to our

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Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE TO THE CLAIMS

1. (Amended) <u>A</u> [Method] <u>method</u> of inserting a message in a subset [(VO)] of digital data representing physical quantities, characterised in that [it] <u>the method</u> includes the steps of:

a) [-] estimating [(E4)] a capacity to receive a message for said subset,

<u>b)</u> [-] selecting [(E5)] <u>from a set of messages</u> a message [with] <u>having</u> a size less than or equal to the estimated capacity, [in a set of messages,] <u>and</u>

<u>c)</u> [-] inserting [(E6)] the selected message in the said subset of digital data.

2. (Amended) <u>The</u> [Insertion] <u>insertion</u> method according to Claim 1, characterised in that it includes a prior step [(E2)] of producing the set of messages, <u>and said set includes</u> [said] messages having different sizes.

3. (Amended) <u>The</u> [Insertion] <u>insertion</u> method according to Claim 2, characterised in that each message [with a size which] <u>in the set that is of a size that</u> is not the largest in the set [of messages] is deducible form another message with a larger size [and] <u>that is</u> included in the set of messages.

4. (Amended) <u>The</u> [Insertion] <u>insertion</u> method according to [any one of Claims 1 to 3,] <u>Claim 3</u>, characterised in that the message is selected [(E5)] so that its size is just less than

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or equal to the estimated capacity for said subset of digital data.

5. (Amended) The [Insertion] insertion method according to [any one of Claims

1 to 4,] Claim 4, characterised in that said subset [(VO)] of digital data has an arbitrary shape.

6. (Amended) The [Insertion] insertion method according to [any one of Claims

1 to 5,] Claim 5, characterised in that said subset [(VO)] of digital data corresponds to an object

characterizing a semantic entity of the set of digital data.

7. (Amended) The [Insertion] insertion method according to [any one of Claims

1 to 6,] Claim 6, characterised in that it also includes the prior steps of:

[-] segmenting [(E1)] the digital data into regions, and

[-] selecting [(E3)] at least one region in order to constitute said subset.

8. (Amended) The [Insertion] insertion method according to [any one of Claims

1 to 7,] Claim 7, characterised in that [the insertion (E6) of the message] step (c) includes, for

each element of the message, the choice of coefficients in said subset and the modulation of the

element on the values of the chosen coefficients.

9. (Amended) The [Insertion] insertion method according to any one of Claims

1 to 8, characterised in that [the estimation (E4) of the capacity] step (a) includes the [calculation]

calculating of the minimum number of coefficients necessary for inserting a message element so as

to be able to detect this element with a predetermined correct detection probability.

10. (Amended) The [Insertion] insertion method according to [any one of

Claims 1 to 7,] Claim 7, characterised in that it includes steps of:

[-] segmenting [(E400)] the subset into blocks[,] and

[-] transforming [(E403, E404)] the blocks by means of a reversible

transformation, prior to [the insertion] step (c),

and [in that the insertion step proper] wherein step (c) includes the steps of:

[-] selecting [(E601)] a group of coefficients in a transformed block, for an

element of the message to be inserted, and

[-] coding [(E603)] the element to be inserted according to the relative values

of the coefficients of the selected group.

11. (Amended) The [Insertion] insertion method according to Claim 10,

characterised in that [the estimation (E407) of the capacity] step (a) includes [the search]

searching for the number of usable groups according to a predetermined rule.

12. (Amended) A [Method] method of extracting a message inserted by the

method [according to any one of Claims 1 to 11,] of Claim 1, in a subset of digital data

representing physical quantities, characterised in that it includes steps of:

[-] extracting [(E105, E106)] the message,

[-] comparing the extracted message with messages stored in memory, and

[-] identifying the fact that the extracted message belongs to a set of stored

messages.

13. (Amended) A [Device] device for inserting a message in a subset [(VO)] of

digital data representing physical quantities, characterised in that it [has] comprises:

[-] means [(3)] of estimating a capacity to receive a message for said subset,

[-] means [(4)] of selecting a message with a size less than or equal to the

estimated capacity, in a set of messages, and

[-] means [(5)] of inserting the selected message in the said subset of digital

data.

14. (Amended) The [Insertion] insertion device according to Claim 13,

characterised in that it also [has] comprises means of producing the set of messages, [said] and

said set includes messages having different sizes.

15. (Amended) The [Insertion] insertion device according to Claim 14,

characterised in that the [production] means of producing are adapted to form each message with

a size [which] that is not the largest in the set of messages so as to be deducible from another

message with a greater size and included in the set of messages.

16. (Amended) The [Insertion] <u>insertion</u> device according to [any one of Claims 13 to] <u>Claim 15</u>, characterised in that the [selection] means [(4)] <u>of selecting</u> are adapted to select the message so that its size is just less than or equal to the estimated capacity for said subset of digital data.

17. (Amended) The [Insertion] <u>insertion</u> device according to [any one of Claims 13 to] <u>Claim 16</u>, characterised in that it is adapted to consider a subset [(VO)] of digital data [which] <u>that</u> is arbitrary in shape.

18. (Amended) The [Insertion] <u>insertion</u> device according to [any one of Claims 13 to] <u>Claim 17</u>, characterised in that it is adapted to consider a subset [(VO)] of digital data [which] <u>that</u> corresponds to an object characterizing a semantic entity of the set of digital data.

19. (Amended) The [Insertion] <u>insertion</u> device according to [any one of Claims 13 to] <u>Claim 18</u>, characterised in that it also [has] <u>comprises</u>:

[-] means [(1)] of segmenting the digital data into regions[,] <u>and</u>

[-] means [(2)] of selecting at least one region in order to constitute said subset.

20. (Amended) The [Insertion] <u>insertion</u> device according to [any one of Claims 13 to] <u>Claim 19</u>, characterised in that the means [(5)] of inserting the <u>selected</u> message are

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adapted to make, for each element of the message, the choice of coefficients in said subset and the

modulation of the element on the values of the chosen coefficients.

21. (Amended) The [Insertion] insertion device according to [any one of Claims

13 to] Claim 20, characterized in that the means [(3)] of estimating [the] a capacity are adapted to

calculate the minimum number of coefficients necessary for inserting a message element so as to

be able to detect this element with a predetermined correct detection probability.

22. (Amended) The [Insertion] insertion device according to [any one of Claims

13 to] Claim 19, characterized in that it [has] also comprises:

[-] means of segmenting the subset into blocks[,] and

[-] means of transforming the block by means of a reversible transformation,

prior to the insertion step,

and [in that] wherein the [insertion] means [(5) have] of inserting the selected

message comprises:

[-] means of selecting a group of coefficients in a transformed block, for an

element of the message to be inserted, and

[-] means of coding the element to be inserted according to the relative values

of the coefficients of the selected group.

23. (Amended) The [Insertion] insertion device according to Claim 22,

characterised in that the means of estimating [the] a capacity are adapted to seek the number of

groups [which] that can be used according to a predetermined rule.

24. (Amended) A [Device] device for extracting a message inserted by the

device according to [any one of Claims 14 to 23,] Claim 13, in a subset of digital data

representing physical quantities, characterised in that [it has] the device for extracting comprises:

[-] means of extracting the message,

[-] means of comparing the extracted message with messages stored in

memory[,] and

[-] means of identifying the fact that the extracted message belongs to a set of

stored messages.

25. (Amended) The [Insertion] insertion device [(10)] according to any one of

Claim 13 to 23, characterised in that the estimation, selection and insertion means are

incorporated in:

[-] a microprocessor [(100)],

[-] a read-only memory [(102)] containing a program for processing the data,

and

[-] a random access memory [(103)] containing registers adapted to record

variables modified during the running of said program.

26. (Amended) The [Extraction] extraction device [(10)] according to Claim

24, characterised in that the extraction, comparison and identification means are incorporated in:

[-] a microprocessor [(100)],

[-] a read-only memory [(102)] containing a program for processing the data,

and

[-] a random access memory [(103)] containing registers adapted to record

variables modified during the running of said program.

27. (Amended) A [Digital] digital signal processing apparatus, characterised in

that it [has] comprises means adapted to implement the insertion method [according to any one of

Claims 1 to 12] of Claim 1.

28. (Amended) A [Digital] digital signal processing apparatus, characterised in

that it [includes] comprises the insertion device [according to any one of Claims 13 to 26.] of

Claim 13.

29. (Amended) A [Storage] storage medium storing a program for

implementing the insertion method [according to any one of Claims 1 to 12] of Claim 1.

30. (Amended) The [Storage] storage medium according to [claim] Claim 29,

characterised in that said storage medium is detachably mountable on [a] an insertion device

according to [any one of Claim 13 to 26] <u>Claim 13</u>.

31. (Amended) <u>The</u> [Storage] <u>storage</u> medium according to [claim] <u>Claim</u> 29 or 30, characterised in that said storage medium is a floppy disk or a CD-ROM.

32. (Amended) <u>A</u> [Computer] <u>computer</u> program on a storage medium and comprising computer executable instruction for causing a computer to insert a message in a subset of digital data representing physical quantities according to [any one of claims 1 to 11] <u>the insertion</u> method <u>of Claim 11</u>.

33. (Amended) <u>A</u> [Computer] <u>computer</u> program on a storage medium and comprising computer executable instructions for causing a computer to extract a message inserted in a subset of digital data representing physical quantities according to [claim 12] <u>the extracting method of Claim 12</u>.